



COST OFFSETS FOR ALCOHOLISM, DRUG ABUSE, AND MENTAL HEALTH TREATMENT

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Preface

This research paper reviews and analyzes the scholarly literature on cost offsets for alcoholism, drug abuse, and mental health (ADM) treatment. Two dimensions of cost offsets are considered: (1) cost offsets resulting from reduced medical utilization following timely and appropriate ADM intervention, more precisely defined as a medical offset; and (2) cost offsets resulting from long term reductions in overall health care expenditures, including the costs of ADM treatment; the latter is a total or absolute offset that may generate cost effectiveness.

This paper is divided into an introduction and three major sections on cost offsets for alcoholism, mental health, and drug abuse treatment. Because of space limitations, only the most comprehensive available studies are discussed. An effort has been made to incorporate as broad and representative a sample of findings as possible, mainly by summarizing the results of previous research reviews.

A variety of sources were used in the preparation of this report, including published reports and articles, books, and unpublished papers--many of which were retrieved from the collections of the National Library of Medicine, as well as from the general collections of the Library of Congress. Valuable source materials were also provided by the Substance Abuse and Mental Health Services Administration (SAMHSA).

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Introduction

During the past decade, the abuse of alcohol and illicit drugs has declined modestly from its historical peak in the late 1970s, and treatment for mental illness has expanded as a result of heightened public awareness of mental disorders and improved access to mental health services.¹ Despite these advancements in reducing substance abuse and confronting mental illness, alcoholism, drug abuse, and mental illness (ADM) continue to impose a substantial burden upon the U.S. health care system.

A large and growing body of policy-oriented literature has begun to explore the various negative externalities associated with ADM. In addition, more specialized scholarly studies have analyzed the extent to which ADM treatment offsets utilization of overall health care services. The policy-oriented studies seek to measure in dollar terms the costs to society of ADM, including costs incurred upon the national health care, criminal justice, and social services systems. The most comprehensive of these studies was completed in 1990 by the Institute of Health and Aging of the University of California at San Francisco, under a contract with the U.S. Department of Health and Human Services (HHS). It estimated total ADM costs to society, including private costs assumed by individuals and families, of \$218 billion in 1985.²

Within the medical and mental health communities, an array of quasi-experimental studies have gathered mounting evidence demonstrating a medical offset effect for recipients of alcohol

abuse and mental health treatment. In some cases, these studies have found that medical offsets translate into cost offsets capable of generating substantial savings in overall health care spending.

Although a majority of studies provide persuasive evidence of a medical offset effect for both alcohol abuse and mental health treatment, they have as yet been unable to demonstrate a reliable or mathematical relationship between psychotherapy or counseling and medical services use. One of the foremost challenges facing offset researchers is the problem of distinguishing the effects of psychotherapy or counseling from a multitude of other variables which could affect medical services use among study populations. Moreover, offset studies have found significant variation in the offset effect across different treatment populations and among alternative treatment modalities. These discrepancies in findings, as well as the necessarily narrow focus of many of the study designs, limit the external validity of results from any single study and make untenable any assertions about the magnitude of the offset for the general population.

Whereas substantial research has been undertaken on the offset effects of alcohol abuse and mental health treatment, few studies have attempted to find a comparable effect for drug abuse treatment. This research gap may reflect the greater difficulty of tracking and reliably profiling the medical services use patterns of drug abusers, as well as the more formidable

challenge of compensating for the statistical bias that results from self selection of those who seek drug abuse treatment.

Cost Offset Studies for Alcohol Abuse Treatment

Over the past twenty years, several dozen studies have addressed the issue of medical and cost offsets associated with alcoholism treatment. Periodic reviews of the research literature have been carried out by Jones and Vischi (1979), Holder (1987), and Holder, Lennox and Blose (1992).³

Early Studies

Initial studies of medical offsets during the 1970s dealt primarily with cost-benefit analysis of Employee Assistance Programs (EAPs) sponsored by a growing number of private and public sector employers. Employer-funded EAPs, which provide in-house counseling and referrals for alcoholism treatment to alcohol-impaired workers, were conceived as a means to combat alcohol-related absenteeism and associated workforce productivity problems.

The EAP studies generally estimated costs and benefits from the vantage point of the employer in order to determine whether such workplace programs were economically justifiable. As a result, they tended to evaluate surrogate measures of reduced health care utilization, such as reductions in sick leave and reductions in sickness and accident benefits claims. Of the twelve alcohol studies surveyed by Jones and Vishci in 1979, eight were based on information from EAPs, of which five evaluated only surrogate measures of health care utilization.⁴

All twelve of the initial alcoholism treatment studies surveyed by Jones and Vischi found some reduction in medical care utilization in terms of reduced number of sick days, savings in employee health benefits claims, or reduced hospitalization or outpatient visits. Taken together, the twelve studies showed reductions in health care utilization ranging from 26 to 69 percent, with a median reduction of 40 percent. The number of sick days fell by 38 to 47 percent, and sickness and accident benefits claims declined by 33 to 48 percent.⁵

Jones and Vischi noted the likelihood that some kind of medical offset effect was taking place, but recognized significant methodological problems in all of the early studies. Many of these first generation investigations were limited by their small sample sizes (frequently involving 100 or fewer persons), lack of adequate comparison or control groups, and short duration of no more than a year of monitoring prior to and following alcohol abuse treatment.

Second Generation Studies

More recent studies on cost offsets for alcohol abuse treatment have incorporated various improvements in research design, such as data gathering from several different treatment contexts, larger and more heterogeneous sample sizes, longer time spans for pre- and posttreatment medical monitoring, and more effective use of matched control groups. With a few important exceptions, these investigations generally support earlier findings of medical cost offsets for treated alcoholics under

most circumstances.

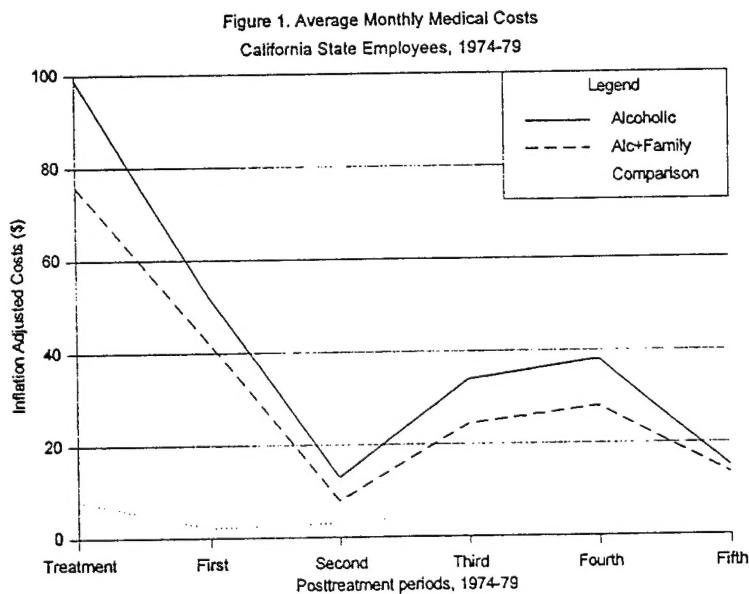
The second generation studies of the 1980s and 1990s analyzed the effects of treatment in more varied contexts than the earlier EAP based studies. Newer studies have obtained medical use information from federal and state employee health plans, private insurers, health maintenance organizations (HMOs), and medicare and medicaid records. Some studies have compared the medical utilization of treated alcoholics with that of demographically matched control groups of untreated alcohol impaired individuals. This practice can only approximate true experimental conditions, however, because ethical considerations preclude the denial of treatment to diagnosed alcoholics in an experimental setting. As a result, control groups must be compiled by collecting medical records of alcoholics who either waived treatment at time of diagnosis, or who were placed on long waitings lists prior to treatment.

The most extensive series of alcoholism treatment offset studies have been carried out by Harold Holder and colleagues. Beginning in the mid 1980s, several research teams undertook large, long-range studies of offsets for insured public and private sector employees.

One of the first major studies used data from an alcoholism treatment demonstration project offered to California state employees. The California Pilot Project provided state employees with Blue Cross/Blue Shield coverage for alcoholism treatment during a trial period from July 1974 to May 1976. The primary

study group for an offset study by Holder and Hallan (1986) consisted of 90 families representing 245 individuals, in which at least one member had received alcoholism treatment.⁶ A control group of 83 families with no alcoholic members, representing 291 persons, was selected to match the study group in terms of age, family composition and gender. All health care utilization for both groups was tracked beginning at twelve months prior to initial treatment and ending in July

1979 (see fig. 1).⁷



Source: Based on Information from Harold B. Holder and Jerome B. Hallan, "Impact of Alcoholism Treatment on Total Health Care Costs: A Six Year Study," Advances in Alcohol & Substance Abuse, 6, No.1, Fall 1986, 10.

The California Pilot study found additional evidence in support of cost offsets for alcoholism treatment. It found that

the greatest potential savings were in inpatient care, where individual spending for the alcoholic group declined by half in the first followup period after treatment and eventually declined by a factor of eight by the end of the posttreatment monitoring period. Outpatient costs for the alcoholic group also declined, but not as sharply as inpatient costs. One of the main drawbacks of the California study was its inability to fully disaggregate the effects of alcoholism treatment from the statistical phenomenon of regression to the mean. For diagnosed alcoholics, the time of diagnosis and treatment initiation tends to coincide with severe medical crises, where use of medical services can be at a lifetime peak. Regression to the mean will naturally cause medical services use to decline regardless of whether alcoholism treatment has been obtained. Statistical regression confounds efforts to measure the effect of alcoholism treatment on medical utilization.

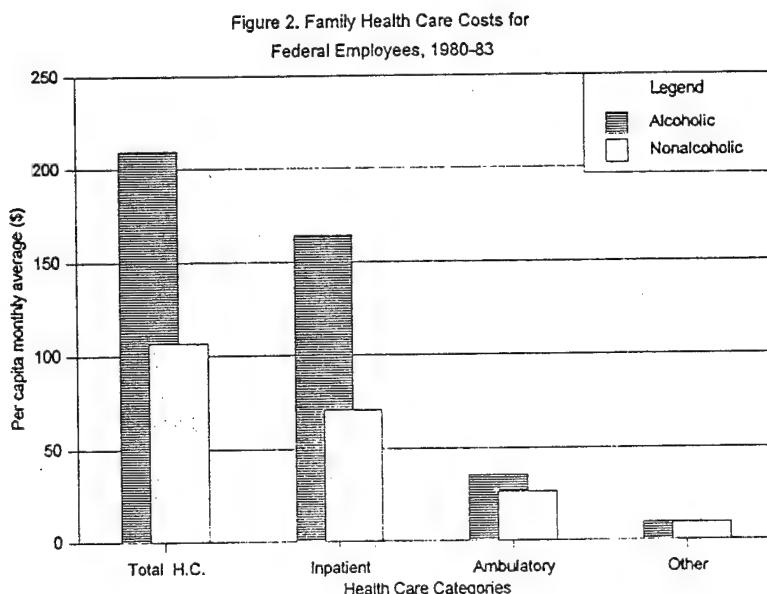
To distinguish treatment-related offsets from regression effects, researchers must probe far back into the medical care histories of alcoholics in order to establish their average level of medical care prior to the immediate pre-treatment medical crisis. Analysis of long term pretreatment and posttreatment medical records allows for more accurate approximation of the average level of medical services use by alcoholics. By comparing it with the long-term medical histories of demographically matched nonalcoholics, this information is used to approximate pretreatment medical demands as well as posttreatment offset

effects. The accuracy of these approximations improves with increases in sample and comparison group size, better comparison group matching, and the prolongation of pretreatment and posttreatment monitoring.

Two studies based on information from large health insurance databases have substantially improved estimates of medical offset effects. A 1986 study sponsored by the National Institute on Alcohol Abuse and Alcoholism (NIAA) examined the insurance claims of alcoholics and family members who were continuously enrolled with Aetna Insurance Company under the Federal Employees Health Benefits Program (FEHB) from 1980 to 1983.⁸ The study group consisted of 1645 individuals who had filed claims for alcoholism treatment and remained continuously enrolled in FEHB-Aetna during the four-year study period. A randomly assigned comparison group of 3598 persons was also selected to provide a baseline indicator of medical services use by nonalcoholics. All medical care claims for both groups were compared from January 1980 to September 1983.

The results of the FEHB-Aetna study confirmed previous findings on cost offset effects and added new information on the pretreatment and posttreatment patterns of medical care use by alcoholics. Holder and Blose found that the four-year average per capita monthly health care costs for families with an alcoholic member were \$209.60, or almost 100 percent higher than comparable costs (\$106.50) for families with no apparent alcoholic members. As had been the case in California Pilot Project study, most of

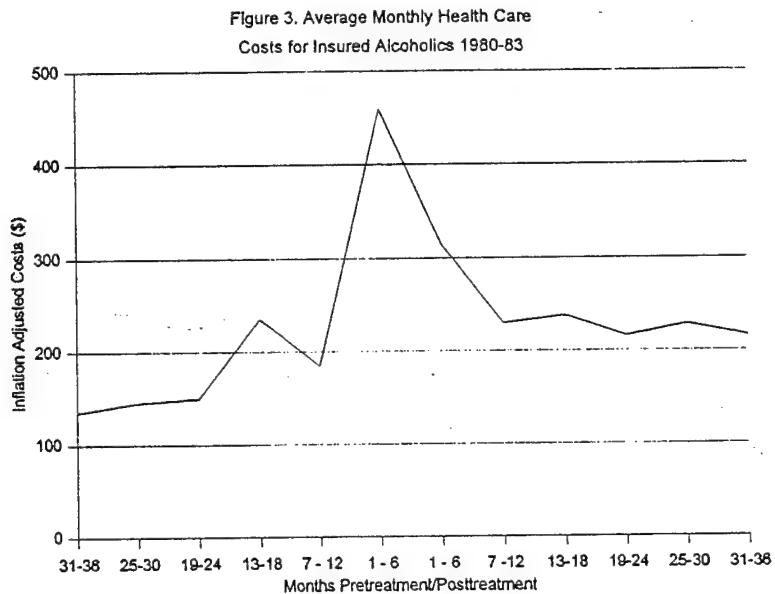
the difference was shown to result from higher monthly inpatient costs (\$164.50 per person) for families with an alcoholic member. Omitting alcoholism treatment costs, the average per capita monthly health care cost of alcoholic families was \$180.88, still well above the nonalcoholic average (see fig. 2).



Source: Based on information from Harold D. Holder and James O. Blose, "Alcoholism Treatment and Total Health Care Utilization and Costs: A Four-Year Longitudinal Analysis of Federal Employees," Journal of the American Medical Association, 256 No. 11, September 19, 1986, 1458.

Treated alcoholics demonstrated a well defined "ramp" pattern of medical care use in the time period surrounding the initiation of treatment. A rapid increase in general health care costs was observed in the year preceding alcoholism treatment, with a very steep increase in costs occurring in the six months immediately prior to treatment. Following treatment initiation,

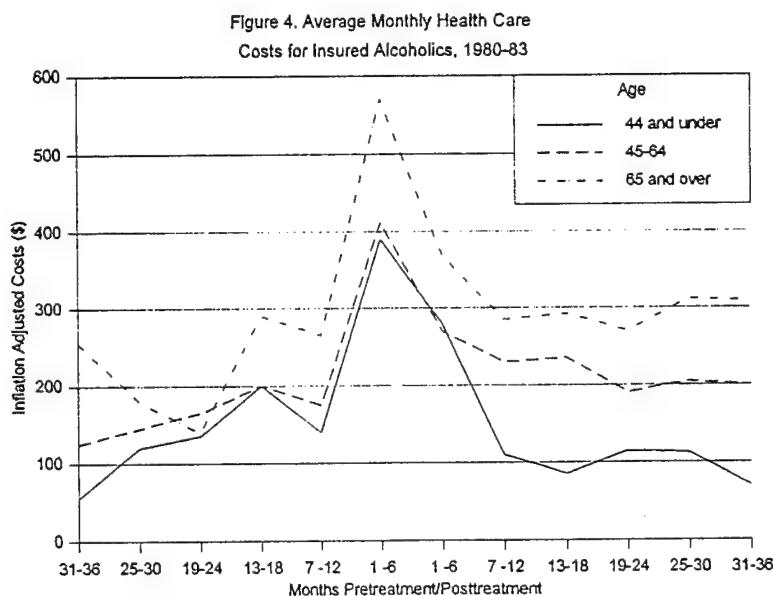
total health care costs dropped rapidly for about twelve months, then continued to decline more slowly into the second and third years after treatment initiation (see fig. 3).



Source: Based on information from Harold D. Holder and James O. Blose, "Alcoholism Treatment and Total Health Care Utilization and Costs," Journal of The American Medical Association, 256, No.11, September 19, 1986, 1459.

The large sample size of the FEHB-Aetna study group allowed for a stratification of results based on age and sex. Although no difference in the pattern of medical care use was found between men and women, age stratification of the data demonstrated a significant relationship between age and the extent of the offset effect. Holder and Blose found that the offset effect was greatest for persons 44 years of age and younger. These individuals eventually reached a level of post treatment medical care that was comparable with that experienced 36 months prior to

treatment. Although the middle age (45 to 65 years old) and older (65 and over) groups experienced significant drops in posttreatment medical care costs, their levels of medical utilization did not decline as much as that of the younger group and never dropped to a point comparable to the lowest pretreatment levels (see fig. 4).



Source: Based on Information from Harold D. Holder and James O. Blose, "Alcoholism Treatment and Total Health Care Utilization and Costs," Journal of the American Medical Association, 256, No. 11, September 19, 1986, 1459.

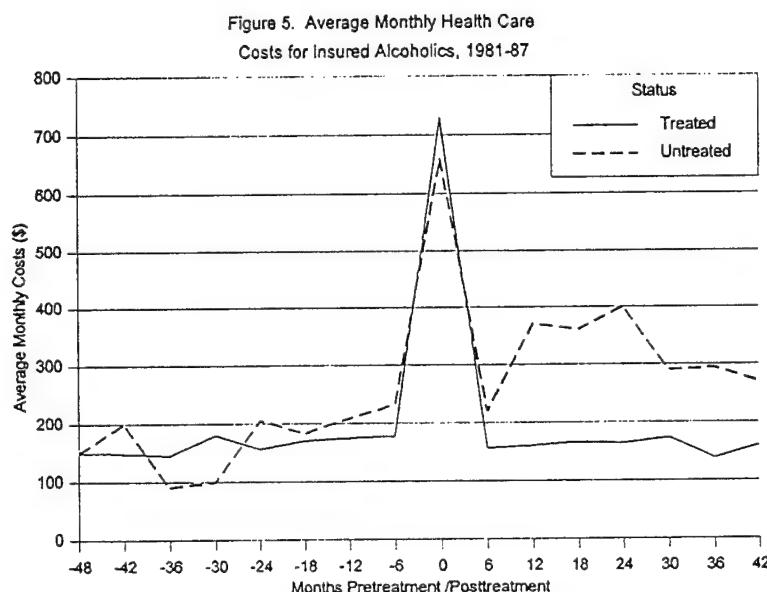
Another NIAA-sponsored study conducted by Holder and Blose in 1990 made a significant breakthrough in offset research by comparing medical care data for a large number of untreated alcoholics with that for the treated study group.⁹ In this study, Holder and Blose reviewed the medical claims records of employees of a large midwestern manufacturing firm who were

enrolled in a company-sponsored comprehensive health plan. Using claims filed from 1974 to 1987, Holder and Blose identified 3,729 diagnosed alcoholics--3,068 of whom received treatment and 661 of whom did not.

Two separate study designs were used. One design analyzed monthly health care cost data only for individuals who had been diagnosed as alcoholics according to the World Health Organization's ICD-9 codes, for persons who were first time alcoholism treatment recipients among the treated group, and for those who had uninterrupted enrollment for 48 months prediagnosis and for 48 months postdiagnosis. These parameters limited the study group to 601 treated alcoholics and 154 untreated alcoholics who were diagnosed sometime between 1981 and 1983. The second study design analyzed medical data for individuals who were covered for the entire 14-year period and had been diagnosed during that time, as well as for members of the first group.

The two study designs found complementary data indicating that monthly medical care costs of treated alcoholics are significantly lower than the costs of untreated alcoholics during the four-year post-treatment period. Results showed that overall health care costs of alcoholics drop an estimated 23 percent to 55 percent below the cost levels that existed immediately prior to treatment.¹⁰ A comparison of the post-treatment health care costs of the treated and untreated groups shows that, after controlling for group differences, the monthly average medical care costs of treated alcoholics are about 24 percent lower than

the costs of untreated alcoholics during the four-year post-treatment period (see fig. 5). This estimate, which effectively controls for regression effects, represents the most accurate measure to date of the medical offset effect for alcoholism treatment.



Source: Based on information from Harold D. Holder and James O. Blose, "The Reduction of Health Care Costs Associated with Alcoholism Treatment: A 14-Year Longitudinal Study," Journal of Studies on Alcohol, 53, No.4, 1992, 298.

Cost Offset Studies for Mental Health Treatment

For the past three decades, the research methods used to measure the medical offset effects of mental health treatment have paralleled the investigative techniques used in alcohol and drug abuse treatment studies. In measuring the offset effects of psychotherapy, however, researchers must account for a complex

set of medical, behavioral and social factors that can affect levels of medical services utilization. Whereas elevated use of medical services corresponds to a higher than average incidence of physical health disorders among both substance abusers and the mentally ill, the latter are also known to approach the medical services sector for care of mental health disorders.

Mentally ill individuals can be steered toward medical care by behavioral factors as well as by a variety of economic and social disincentives that may prevent use of more appropriate psychiatric treatment. Among the hypothesized social and economic explanations for the excessive or inappropriate use of medical services by the mentally ill are lack of access to mental health services (primarily as a result of nonexistent or inadequate insurance coverage for mental health treatment); inability to distinguish between mental and physical health problems; inability to cope with a diagnosed mental illness; avoidance of mental health treatment because of fear of ostracism or loss of livelihood; misdiagnosis by primary care physicians; and deliberate avoidance of mental illness diagnoses by primary care physicians.

To the extent that elevated use of medical services results from medical somatization of psychiatric illness, a gradual medical offset can be expected as a byproduct of effective psychotherapy. Concurrently, a much more pronounced medical offset may be realized if psychotherapy also breaks a behavioral or externally imposed pattern of excessive or inappropriate care

seeking in the medical services sector.

In their landmark ADM offset research survey, Jones and Vischi (1979) summarized and evaluated the results of thirteen mental health offset studies. They found that twelve of the thirteen studies showed at least some reduction in medical care utilization following a mental health intervention. The reductions in medical care utilization ranged from five percent for outpatient visits to 85 percent for inpatient hospital stays, with a median reduction of 20 percent among all types of medical care.¹¹

Jones and Vischi discovered similar methodological problems in the mental health studies as those encountered in the early alcohol investigations, but determined that these were not as detrimental to the validity of the results. As with the alcohol studies, the main drawbacks were the absence or inadequacy of comparison groups and the inability to perform randomized clinical trials using treatment versus no-treatment groups. The early mental health studies were therefore hampered by the same problems of statistical peaking and regression that had confounded the initial alcoholism offset findings.

A followup survey of mental health offset research was compiled by Emily Mumford and colleagues in 1984.¹² Mumford's group analyzed the results of 58 controlled medical offset studies completed since the 1978 research review in an effort to consolidate the findings. The Mumford group also performed its own independent offset research using a very large database

containing claims files of the Blue Cross and Blue Shield Federal Employees Plan for the years 1974 to 1978.

The Mumford group's meta-analysis of mental health offset studies yielded several important findings. Eighty-five percent of the studies reported a decrease in medical utilization following psychotherapy, with the range of outcomes from all studies varying widely between a 72.4 percent increase to a 181.6 percent posttherapy decrease.¹³

Grouping the results according to study design, the survey team found that a subset of twenty-six naturalistic studies based on time series analysis yielded an average offset of -33.1 percent. A separate subset of 22 experimental studies based on random assignment, which did not suffer from the confounding effects of self selection, yielded a smaller average offset effect of -10.4 percent.¹⁴ Examining five studies that permitted unconfounded examination of offsets for both inpatient and outpatient treatment, the Mumford group found that four of the studies registered larger offsets for inpatient medical use than for outpatient care. The average medical offset was -73.4 percent for inpatient utilization and -22.6 percent for outpatient utilization.¹⁵ The Mumford group's finding of a larger offset effect for inpatient than for outpatient treatment was corroborated by data from their analysis of Blue Cross and Blue Shield records.

Mumford and colleagues also found a correlation between age and the extent of the offset effect. In contrast to the findings

of the alcoholism studies, where the offset becomes less prominent with age, the mental health treatment offset was found to be greater among older individuals. This corresponds to the above finding of larger offsets for inpatient treatment, given that older individuals are disproportionately represented in that category. Whether the older average age of the inpatient care study groups was the sole reason for the larger inpatient offsets, or whether other intervening variables were operative, was not adequately addressed by the Mumford study team.

Considering that 75 percent of all medical charges are attributable to inpatient hospitalization costs, Mumford and colleagues concluded that substantial medical care cost savings can be obtained from providing timely and appropriate mental health treatment to older populations.¹⁶

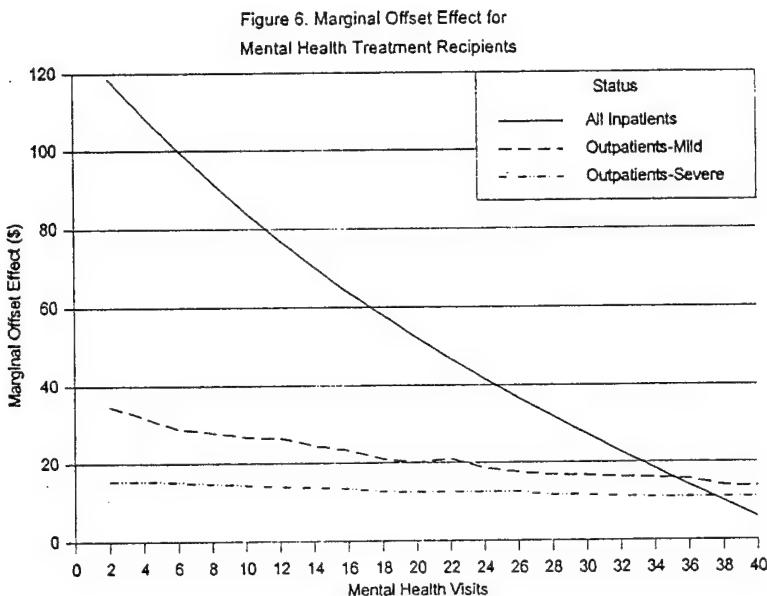
Mumford and colleagues also found substantial evidence to show that recipients of mental health services tend to suffer more from chronic disease and are physically sicker than people who do not use psychiatric services. This supports the hypothesis that elevated medical utilization by the mentally ill is not solely a product of substitution effects, but results also from real manifestations of physical disorders.

More recent offset research by Fiedler and Wight (1989) used data from a very large database compiled from the Medicaid claims files of the state of Georgia during the period 1980 to 1982.¹⁷ Drawing from an initial mental health claims file of about 60,000 individuals, Fiedler and Wight obtained a study group numbering

411 individuals who met all the parameters for participation.

Fiedler and Wight found a substantial and significant offset across various treatment subgroups, but with variations in the magnitude of the effect according to the severity of physical and mental illnesses that individuals suffer. They observed that the offset for patients with mild mental health disorders is larger than that of patients with severe mental illnesses. Moreover, the Georgia Medicaid data confirmed earlier findings of larger offsets among inpatient medical treatment recipients than among medical outpatients. The observed offset was determined to result from the greater opportunity for cost savings among medical inpatients.

Fielder and Wight also observed a lessening of the offset effect as the number of psychotherapy sessions increased. The first mental health treatment visit resulted in savings in physical health charges of almost \$33 for those with mild diagnoses and \$15 for those with severe diagnoses. By the thirtieth visit, these savings dropped to less than \$16 for those with mild diagnoses and less than \$11 for severely diagnosed individuals (see fig. 6).¹⁸



Source: Based on Information from John L. Fiedler and Jonathan B. Wight, The Medical Offset Effect and Public Health Policy, New York: Praeger 1989, 101.

By far the greatest beneficiaries of mental health treatment in the Georgia Medicaid study were medical inpatients with mild mental health disorders. This group demonstrated an average medical offset of -\$1465 during the two-year study period. The next largest average offset was -\$392 for medical outpatients with mild mental health disorders. The smallest average medical offset was found among medical outpatients with severe mental illnesses, whose medical utilization costs fell by only -\$296 during the two-year study period (see tab. 1).

Table 1. Estimated Changes in Health Care Expenditures
Georgia Medicaid Recipients, 1980-82

Per person estimated changes in health care expenditures (in Dollars)					
	Study Group N=	Average No. of Mental Health Visits	Physical	Mental	Net
Outpatients					
Mild Diagnosis	109	14	-392	+868	+476
Severe Diagnosis	99	22	-296	+1364	-1068
Total Outpatients	208	18	(weighted average)		+763
Inpatients					
Total Inpatients	203	16	-1465	+992	-473
Total	411	17	(weighted average)		+153

Source: Based on information John L. Fiedler and Jonathan B. Wight,
The Medical Offset Effect and Public Health Policy, (New
York: Prager, 1989), 104.

Measuring total change in health care expenditures, Fiedler and Wight found that only mildly impaired inpatient care users demonstrated a total health care offset during the two year study period. Among the other categories of mental health treatment recipients, savings in medical expenditures were not large enough to offset the added costs of providing mental health treatment.

Fiedler and Wight's results suggest that providing mental health treatment may not be cost effective for medical outpatients or the severely medically ill, at least during the initial two years after initiation of treatment. They note that, ironically, these populations are often the ones most in need of mental health services. They therefore conclude that efforts to extend

mental health treatment to underserved populations will have to be based more on long term considerations of general individual and societal benefits than on short term cost-benefit criteria.

Cost Offset Studies for Drug Abuse Treatment

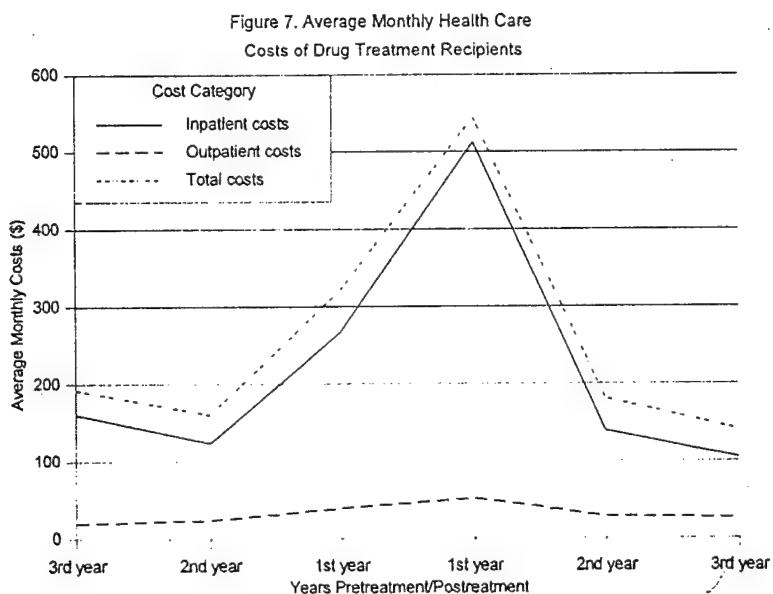
The only major study to date to measure cost offsets for drug abuse treatment was recently completed by Richard Lennox using the same large dataset from a midwestern manufacturing firm that Holder and Blose had previously employed to measure alcoholism treatment offsets.

Relying on the same methodology as the earlier alcoholism study, Lennox obtained a study group of 545 individuals diagnosed as drug dependent based on ICD-9 codes and who were continuously covered by the company plan from 1977 to 1987. The comparison group from the Holder and Blose study was used again for the drug abuse study.

Lennox's findings of offsets for drug treatment recipients were generally comparable to those of the earlier alcohol study. Average monthly health care costs exhibited a ramp effect similar to that displayed by the alcoholic study group. Total health care costs for drug treatment recipients increased from approximately \$190 per month at three years pretreatment to about \$544 per month during the first post-treatment year, declining sharply thereafter to a level below the pretreatment mean during the third post-treatment year (see fig. 7).

As with the alcoholism and mental health study groups, total inpatient medical costs showed greater overall reductions than

outpatient costs, suggesting a greater offset potential for the former. Drug treatment recipients also showed a correlation between age and magnitude of the offset similar to that observed among treated alcoholics, with a lesser offset for older individuals above age 50. As with the alcoholic study group, male and female drug treatment recipients showed no significant difference in terms of the offset effect.



Source: Based on information from Richard D. Lennox, "Cost Offsets of Drug-Abuse Treatment Provided in the Private Sector." (Paper presented at annual meeting of Association for Health Services Research.). Washington: June 28, 1993, 22.

Conclusions

Although offsets studies by themselves are insufficiently comprehensive to establish the existence of a universal ADM offset effect, findings from the large volume of offset research

to date for alcoholism and drug abuse treatment demonstrate some significant points of convergence. The fact that these findings concur across various study populations, treatment contexts, and study designs suggests that they may in fact reflect universally observed phenomena.

Reviewing twenty-five years of alcoholism treatment offset research, Holder and colleagues identified four major points of convergence in findings:

1. Untreated alcoholics in an employee or dependent population use health care and incur costs at about twice the rate of their nonalcoholic age and gender cohorts.
2. Once alcoholism treatment begins, total health care utilization and costs begin to drop independently of the expected regression to the mean, suggesting that most forms of alcoholism treatment are at least partly effective in reducing medical expenditures. Total health care expenditures tend to fall below those of the pretreatment mean two to four years after initiation of treatment, suggesting that cost effectiveness is achievable in the medium term for most alcohol treatment recipients.
3. Age is a significant moderator of the cost offset effect, with individuals younger than 45 years having the best prospects for reducing total health care costs below pretreatment levels. Individuals older than 45 years generally take longer to return to their median pretreatment health expenditure levels and may never fall below them. Individuals older than 65 years are least likely to experience a fall in health care spending below median

pretreatment levels. The inability of older alcoholics to fall below median pretreatment levels of health care spending is probably caused by the presence of alcoholism-related comorbidities that are not addressed by alcoholism treatment.

4. Medical inpatients show greater cost offsets than their outpatient age cohorts because of greater opportunities for cost savings in inpatient care, which accounts for 75 percent of total health care expenditures.

Some of the mental health treatment findings are also consistent across several studies.

1. Medical offsets have been found to take place among most recipients of mental health treatment, but savings in medical spending do not in many cases offset the added costs of mental health treatment, at least in the short term. Research by Fiedler and Wight as well as other studies suggest that medical inpatients experience substantially larger medical offsets than outpatients. Providing mental health treatment to inpatients is likely to be cost effective, whereas cost effectiveness cannot be reliably predicted for medical outpatients.

2. The moderating effect of mental health treatment on medical utilization appears to decline incrementally after the first treatment episode, and may eventually fall to zero after a certain number of treatment sessions. In some cases, prolonging mental health treatment beyond the zero offset point may actually increase medical utilization by creating dependency on health care services.

3. Individuals diagnosed with mild or transitory mental disorders experience larger medical offsets in response to mental health treatment than individuals diagnosed with severe mental illnesses. Whereas the provision of mental health services to mildly disabled individuals may eventually prove cost effective, the greater medical and mental health demands of the severely mentally ill are unlikely to be met in a cost effective manner.

Although the findings from drug treatment offset studies are too few to provide firm conclusions, initial data indicates that drug abuse treatment recipients experience medical offsets comparable to those of alcoholism treatment recipients. This suggests that drug abuse treatment may have a potential for medical offset and cost effectiveness comparable to that of alcoholism treatment.

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